DLA Aviation Casting and Forging Program Overview for Contractors

Program Manager (804)-279-3866
DLA Aviation-VEA
Casting & Forging Program Manager

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Two Programs - A Common Plan

- DLA has implemented two industry cost shared, manufacturing technology programs, to address business enterprise technical needs and key industries of DoD
  - PRO-ACT - supported by the American Metalcasting Consortium (AMC), managed by Advanced Technology Institute (ATI).
  - PRO-FAST - supported by the Forging Defense Manufacturing Consortium (FDMC), managed by ATI.
- Three Parts to the Programs:
  - NSN Part Problem Resolution
  - Training
  - Research & Development
- Potential Population of NSNs Impacted is 300K

NSN Part Problem Resolution

- **SCOPE:** The NSN has a casting/forging that is causing readiness problems for an aircraft supported by DLA Aviation

- **GOAL:** Reduce Back Orders, ALT & PLT, Resolve Technical Data Issues, and Assist Contractors with C/F Issues

- **PRO-ACTIVE EFFORTS:** Changing the Way We Do Business for These Complex Parts via Additional Information in the Solicitation

- **PARTNERING:**
  - The X-IT Team is the combination of DLA Aviation Engineering, AMC Engineers, FDMC Engineers and Cherokee C/F Support.
  - Through established relationships with their industry associations and member companies, second tier commercial metalcasting/forging and machining supply chain capability is developed.

How The Program Can Help

- **Sourcing** - Inability to Manufacture due to unresponsive C/F supply chain
- **Technical Field Support** to Foundry/Forge
- **Tooling Location** - Inability to Manufacture due to unavailable tooling
- **Update TDP** with current processes, etc
- **Assist Engineering Support Activity** in expediting required Engineering Analysis/Response (Pre-positioned Answer on Form 339)

NSN Part Problem Resolution

- **F5 Crossbleed Valve Body (2995-01-088-7021)**
  - **Problem:** DLA Backorder - Foundry Technical Issue
  - **Resolution:**

The cast design was improved by AMC and approved by the ESA

The gating on the cast part tooling was modified

- **Result:**

“The new foundry tried several times to make good castings with no success. I got a call from American Metalcasting Consortium and they told me that they work for the Government …AMC and the new foundry solved the problems with the castings and got them to pass x-ray. The castings are now being machined. The problem area for porosity has been machined and there have been no defects or rejections.”

Training

Design, Material, Process, and Procurement Training via:

1. Benchmarking Site Visits
2. Methodology to Resolve NSN Part Problems
3. Forging and Metalcasting Seminars
4. PRO-FORGE

PRO-FORGE: Installing the Forging Design and Acquisition Processes within an OEM

PRO-FORGE is a Five-Step Process for effectively designing and acquiring forgings for either commercial or defense systems.

- Step 1 is to build a cross-functional team chartered with responsibility of building new and innovative forging design and acquisition processes.
- Step 2 is to document the As-Is and Should-Be Design and Acquisition Processes.
- In Step 3, which occurs in parallel with Step 2, the team receives training to build its skills.
- Step 4 is to Benchmark best practices to identify opportunities for substantive process improvement.
- Step 5 is the “on-the-fly” Deployment of the PRO-FORGE process to design and acquire forgings for the UH60M Program which couldn’t wait for a serial approach.

- In addition to supporting the UH60M Program, PRO-FORGE also addresses design and acquisition issues related to procuring forgings for aging aircraft supported by the Defense Logistics Agency. PRO-FORGE illustrates a Process or Product Improvement Team that supports other

Research & Development

- **Examples of Collaborative R&D Effort Between Industry, Academia & DLA:**

- Rapid Tooling
- National Tooling Databases
- Part Quality Simulation Tools

Defense Tooling Locator
http://www.defensetooling.net

….an online searchable database of defense-related Casting Tooling

- Provides Manufacturers an avenue, via DLA, to tap previously existing supply chains
- Directs business opportunities back to participating Metalcasters
- Provides a resource for Manufacturers to locate existing tooling

Database Contact:

Ryan Moore, Program Manager

(847) 299-0950 ryanm@nffs.org

An OEM's View of Castings & R&D

- "Castings can provide formidable benefits in aerospace structural applications."
- The OEM "recognizes the cost and time savings that castings can provide."
- "Despite the benefits achievable with castings, we have not fully realized their potential…castings are the worst performing commodity in terms of delivery and quality… this type of industry performance has resulted in a lack of confidence in castings."
- "What we need are optimally designed castings, reliable in quality, and delivered on time."
- "Your work at UAB with computer simulations and non-destructive testing techniques resonates with our aerospace casting development expectations."
- "It is my hope that UAB will continue to work with our company and our casting suppliers in advancing casting technology… Thank you for your efforts in promoting this research."

For More Information

Visit our Websites

For AMC

http://amc.aticorp.org/

For FDMC

http://fdmc.aticorp.org/

- Contact Us:
  Program Manager (804) 279-3866
  AFCAT.PM@dla.mil
- CASTINGS
  - Program Manager [Contractor] (804) 279-4955
    dscr.afcat@dla.mil
- FORGINGS
- Program Manager [Contractor] (804) 279-4951
  dscr.afcat@dla.mil

Take A Ways

- X-IT is a Pre-positioned Resource to Solve Casting & Forging Issues
- Charter with Aviation Engines & Airframes Division
- Searchable Web Based National Tooling Databases
- Define Cast/Forged Requirement to Preclude Issues on Future Procurements
- Training – Benchmarking Site Visits, Seminars, PRO-FORGE

One Aviation Team